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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/548,892 04/13/00 ISLEY

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EXAMINER

IM52/0411

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ART UNIT	PAPER NUMBER

1762
DATE MAILED:

04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No. 09/548,892	Applicant(s) INSLEY ET AL.	
	Examiner Wesley D Markham	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) 23 and 24 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 7, 9-11, 14-17 and 22 is/are rejected.
- 7) ☒ Claim(s) 5, 6, 8, 12, 13 and 18-21 is/are objected to.
- 8) ☒ Claims 1-24 are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- | | |
|--|--|
| 15) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 18) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 16) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 19) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 17) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 20) <input type="checkbox"/> Other: |

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1 – 22, drawn to a method of making an electret, classified in class 427, subclass 248.1.
 - II. Claims 23 – 24, drawn to a filter and a respirator comprising an electret, classified in class 307, subclass 400.
2. Inventions I and II are related as process of making and product made, respectively. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case, the process as claimed can be used to make other and materially different products such as electro-acoustic devices comprising electrets such as microphones, headphones, and electrostatic recorders.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Karl G. Hanson on April 2, 2001, a provisional election was made with traverse to prosecute the invention of Group I, Claims 1 – 22. Affirmation of this election must be made by applicant in replying to this

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Office action: Claims 23 – 24 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Specification

6. The abstract of the disclosure is objected to because many of the aspects of the invention that the applicant considers to be novel are not described. Specifically, no description is given in the abstract about how the vapor is condensed onto the dielectric article or the composition of the dielectric article. The abstract should be a concise statement of the technical disclosure of the patent and should include that which is new in the art to which the invention pertains. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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8. Claims 15 – 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 15 recites the limitation "wherein the nonwoven fibrous web comprises microfibers." There is insufficient antecedent basis for this limitation in the Claim or in the parent Claim 11. The examiner believes that the situation can be remedied by altering Claim 15 to depend on Claim 14 instead of Claim 11.

10. In making the claim rejections below, the examiner has interpreted language of the claims in view of the applicant's glossary of terms (pg. 2 – 3). Specifically, the term "drying" in Claim 1 has been interpreted to read "removing condensate from the surface of an article." This limitation excludes processes such as those that deposit a compound (e.g., a metal) by vapor deposition because the condensate in these processes is the deposited metal, which is not removed by drying. This limitation also excludes processes such as liquid-contact charging and "hydrocharging" in which a liquid is applied to the surface of a dielectric material by a method other than condensation (i.e., with a sponge or by misting or spraying).

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by an IBM Technical Disclosure Bulletin, December 1961.

13. Regarding Claim 1, The IBM Technical Disclosure Bulletin teaches condensing vapor from an atmosphere of a controlled environment onto a dielectric article to form a condensate thereon and then drying the article. Specifically, the Bulletin teaches providing a solvent vapor, for example trichloroethylene, in a chamber, condensing the solvent vapor onto a dielectric film, and drying the article (Disclosure Text).

14. The IBM Technical Disclosure Bulletin teaches all the limitations of Claim 3 as set forth in paragraph 13, including a method wherein the dielectric article comprises a nonconductive polymeric material. In this case, the nonconductive polymeric material is polyethylene terephthalate (Disclosure Text).

15. Claims 1, 3 – 4, 7, and 10 – 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Sidles et al. (USPN 4,351,789).

16. Regarding Claim 1, Sidles teaches a method for molding rubber or plastic articles comprising condensing vapor from an atmosphere of a controlled environment onto a dielectric article to form a condensate thereon and then drying the article. Specifically, Sidles teaches placing a rubber tire (i.e., a dielectric material) into a tire curing press having an upper and lower mold section. When the upper mold section is moved almost to the closed position relative to the lower mold section, a vaporized coating material such as steam is fed into the mold cavity and condenses on the relatively cool rubber

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tire to produce a film of the coating liquid on the tire. The tire is then dried by increasing the temperature of the mold cavity and reducing the pressure within the mold cavity to cause the coating liquid to evaporate from the surface of the tire and to be evacuated from the mold cavity through vapor release passages (Col.4, lines 46 – 69, and Col.5, lines 1 – 41).

17. Sidles teaches all the limitations of Claims 3 – 4, 7, and 10 – 11 as set forth in paragraph 16, including a method wherein:

- a. Claim 3 – The dielectric article comprises a nonconductive polymeric material (i.e., rubber) (Abstract).
- b. Claim 4 – The condensate includes a polar liquid (i.e., water) (Col.4, line 66).
- c. Claim 7 – The step of condensing comprises placing an article at a lower temperature in contact with a vapor at a higher temperature such that the vapor condenses on the article (Col.5, lines 1 – 5).
- d. Claim 10 – The polar liquid is an aqueous liquid (Col.4, line 66).
- e. Claim 11 – The condensate consists essentially of water (Col.4, line 66).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. Claims 1 – 4, 7, 9 – 11, 14 – 17, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angadjivand et al. (USPN 5,496,507) in view of Pike et al. (USPN 5,759,926) or Osaki et al. (USPN 4,685,569).

20. Regarding Claim 1, Angadjivand teaches a method of making an electret comprising spraying a fine mist of water droplets in a controlled environment onto a dielectric article (e.g., a meltblown microfiber web) and drying the article (Col.3, lines 59 – 67, Col.4, lines 1 – 30, and examples 1 – 7). Since a fine mist of water droplets has been interpreted by the examiner to exclude water vapor, Angadjivand does not teach condensing vapor from an atmosphere onto a dielectric article to form a condensate thereon. Osaki teaches that wood pulp fibers to be treated with a corona discharge can be effectively moistened by either spraying the fibers with water by means of a shower or nozzle or by moistening by steam (i.e., water vapor) (Col.5, lines 18 – 22). Pike teaches that meltblown microfiber webs can be thoroughly wetted by passing the webs through a hot water bath, spraying the webs with water, or spraying the webs with steam (Col.8, lines 40 – 46). It would have been obvious to one of ordinary skill in the art to wet the dielectric article of Angadjivand with steam as taught by Osaki or Pike instead of a fine mist of water vapor with the reasonable expectation of successfully condensing the steam (i.e., water vapor) onto the article to thoroughly wet the article as desired by Angadjivand.

21. Angadjivand teaches all the limitations of Claims 2 – 4, 7, 9 – 11, 14 – 17, and 22 as set forth in paragraph 20, including a method wherein:

- a. Claim 2 - The electret exhibits a persistent electric charge (Cols.1 – 2);

- b. Claim 3 - The dielectric material comprises a nonconductive polymeric material (Col.2, lines 40 – 62);
- c. Claim 4 – The condensate includes a polar liquid (Cols. 3 – 4);
- d. Claim 7 – The step of condensing comprises placing an article at a temperature T1 in contact with the vapor, the vapor being at temperature T2, where T1 is sufficiently less than T2 such that the vapor condenses on the article. In this case, Angadjivand teaches that the web is dried at a temperature of 70° C after being sprayed with a mist of water to wet the web (Col.5, lines 50 – 52). It would have been obvious to one of ordinary skill in the art that the web was at a temperature less than 70° C during the spraying step or the drying step would not have been necessary. Therefore, the steam taught by Osaki and Pike is at a temperature (i.e., ~100° C) higher than the temperature of the web.
- e. Claim 9 – The controlled environment comprises a vacuum chamber. Specifically, a vacuum is provided beneath a porous support to help the water pass through the web and reduce drying energy requirements (Col.4, lines 10 – 19).
- f. Claim 10 – The polar liquid is an aqueous liquid (Cols. 3 – 4);
- g. Claim 11 – The condensate consists essentially of water (Cols. 3 – 4);
- h. Claim 14 – The article is a nonwoven fibrous web (Col.1, lines 55 – 62);
- i. Claim 15 – The nonwoven fibrous web comprises microfibers (Col.1, lines 55 – 62).
- j. Claim 16 – The microfibers are meltblown (Col.2, lines 40 – 46).

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k. Claim 17 – The meltblown microfibers comprise polypropylene, poly-(4-methyl-1-pentene), or a combination thereof (Col.2, lines 48 – 62).

l. Claim 22 – The electret exhibits persistent electric charge, the dielectric article comprises a nonconductive polymeric material, and the condensate comprises a polar liquid (See (a), (b), and (c) above).

Allowable Subject Matter

22. Claims 5, 6, 8, 12 -13 and 18 – 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is an explanation of the examiner's indication of allowable subject matter.

23. Regarding Claim 5, the step of placing the article in a liquid before condensing the vapor has not been taught in the prior art in a process related to the applicant's claimed invention.

24. Regarding Claims 6, 8, and 18 – 21, the process of forming an atmosphere comprising a vapor by altering a property of a controlled environment to evaporate a liquid into the atmosphere and/or condensing the vapor onto the surface of a dielectric article by altering the pressure or volume of the controlled environment is considered novel in the process as claimed by the applicant.

25. Regarding Claims 12 – 13, the examiner does not believe it would have been obvious to substitute the compounds taught in Claims 12 – 13 for the steam in the process of Angadjivand and Pike or Osaki. Although the compounds in Claims 12 – 13

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are well known compounds in the art of liquid-contact charging a dielectric substrate to form an electret, it would not have been obvious to spray vapors of these compounds in this process due to environmental and flammability concerns in vaporizing these compounds and spraying them through a nozzle.

Conclusion

26. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jones et al. (WO 00/01737) teaches using the hydrocharging method as taught in Angadjivand et al. to form an electret from a substrate that has been surface fluorinated. Rousseau et al. (USPNs 5,976,208, 5,919,847, and 5,908,598) teaches a hydrocharging method for meltblown microfiber webs. Tani et al. (USPN 5,110,620) teaches forming an electret by condensing metal vapor onto a porous sheet made of a dielectric polymer. Nowlin et al. (USPN 4,291,245) and Beach et al. (USPN 4,291,244) teach forming an electret by condensing a vapor onto a dielectric article so that the vapor polymerizes upon condensation. Chudleigh ("Charging of Polymer Foils using Liquid Contacts") teaches using ethyl alcohol, acetone, and water to charge electrets. Klein et al. (USPN 4,397,702) teaches using Freon in a liquid contact charging process to form an electret. Saakjan et al. (EP 0 829 293 A1) teaches forming an electret using saturated solvent vapors at the fiber forming process zone.

27. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D Markham whose telephone number is (703)

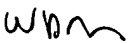
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308-7557. The examiner can normally be reached on Monday - Friday, 7:30 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shrive Beck can be reached on (703) 308-2333. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-5408 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Wesley D Markham
Examiner
Art Unit 1762


WDM
April 6, 2001


Shrive Beck
Supervisory Patent Examiner
Technology Center 1700